1st September 2011

Original operating manual

ECO Automatic Lamb Feeder

For program version 00.09 and higher

TAP5-EZ2-50_32-F3

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1 Introduction

This operating manual puts you in the position to operate this automatic feeder safely as intended.

> Please read this operating manual carefully before putting the automatic feeder into service.

> Keep this operating manual readily available at all times and pass it on to the next user.

> Observe all warnings and safety instructions in this operating manual at all times.

1.1 Copyright

The copyright to this operating manual is reserved by Förster-Technik.

1.2 Disposal

All components, liquids and solids must be disposed of in compliance with the official local regulations for waste prevention and the appropriate waste recycling and disposal regulations which apply in your country. Also observe the corresponding safety data sheets.

1.3 Transport

The automatic feeder is delivered on a pallet with the dimensions 810 mm x 620 mm.

> Check the product for visible signs of damage upon delivery and report them immediately to the carrier.

1.4 Contact details of the manufacturer

Please contact us if you have any questions about our products or require technical support.

Please note down the type, serial number and program version of your device in order to submit them when making a call. These

details are essential in order for you to obtain advice that is suitable for your machine type. The device type and serial number can be found on the name plate to the left of the automatic feeder housing. The program version appears when the automatic feeder is switched on.

Device type:

Serial number:

Program version:

Our contact details:
Förster-Technik GmbH
Gerwigstr. 25
D-78234 Engen, Germany
Phone: +49 / (0)7733 / 9406 - 0
Fax: +49 / (0)7733 / 9406 - 99
info@foerster-technik.de
www.foerster-technik.de

2 For your safety

2.1 Target group

2.1.1 Necessary qualifications of the owner

The owner must be a trained farmer or have good practical experience in farming. He must be familiar with the relevant accident prevention regulations and generally approved safety rules.

2.1.2 Necessary qualifications of the service technician

Only trained service technicians are authorised to install the automatic feeder, put it into service and subject it to maintenance and repairs.

Service technicians are electricians with the appropriate qualifications, which means they are able to assess the work assigned to them and recognise potential risks on the basis of their technical training as well as their knowledge of the relevant standards. This includes knowledge of relevant accident prevention regulations, generally approved safety rules, EU directives and country-specific standards and provisions.

2.2 Intended use of the automatic feeder

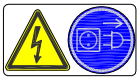
The automatic feeder should only be used for the automatic preparation, heating and dosing of liquid animal feed for young animals.

2.3 Safety signs on the machine

The safety signs on the machine are an important part of the safety concept and help prevent accidents.

They indicate danger areas at the machine and warn against residual risks.

Keep all safety signs in legible condition and renew them if they become unreadable.



Danger due to live electrical components!

Danger of death by electric shock!

- Always pull all mains plugs before carrying out any work on the automatic feeder.

Danger due to hot surfaces!

The solenoid valves can reach temperature of up to 100°C during operation or malfunctions.

Severe burns may be the result.

- Never touch the solenoid valves when they could be hot.

Danger due to dry running of the heating!

If there is no water in the boiler, the heating will run dry and can be destroyed as a result.

- Put enough water in the boiler before you switch on the heating.

Danger due to automatic start-up!

Hand injuries can be caused by reaching into the danger of crushing area at the indicated points.

- Never reach into the danger of crushing area at the indicated points as long as parts are able to move there.
- Always use the tool included in the scope of delivery to clean the powder discharge opening.
- Switch off the automatic feeder before performing any work on it.

Do not spray-wash!

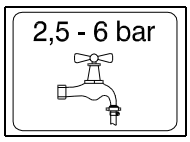
Water (liquids) can damage electrical components.

- Do not spray-wash the automatic feeder. Do not use any high-pressure cleaners or similar equipment either.
- If you want to clean the automatic feeder, only use a damp cloth to wipe the respective components.

2.4 Signs on the machine

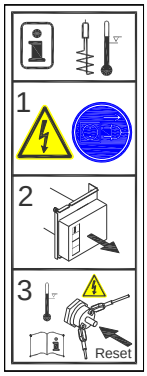
The individual signs attached to the outside or inside of the machine are described in the following.

Permitted water pressure



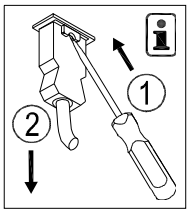
This sign indicates that the permitted water pressure should be between 2.5 and 6 bar.

Reset safety temperature limiter



This sign explains to you how to safely activate the safety temperature limiter. You can find the exact procedure in the chapter “Heating does not respond (E--4)”, page 50ff.

Interrupt boiler power supply



This sign shows you how to pull the plug properly.

2.5 Indication of hazards

Hazards are indicated by a key word and a corresponding symbol, depending on the severity and probability:

	Danger! For an imminent danger of serious injury or death

	Warning! For a potentially dangerous situation which may cause serious injuries or even death

	Caution! For a potentially dangerous situation which may cause minor injuries or material damage

Attention	For a potentially harmful situation in which the product or an item can become damaged within its environment

Note	For application notes and other useful information.

However, it is just as important to observe any other notes and information which are not highlighted to avoid failures which, in turn, may cause direct or indirect injuries or material damage.

2.6 Residual risks

The automatic feeder is state of the art and has been designed in compliance with approved safety rules. Hazards and adverse effects may nevertheless arise when using the automatic feeder.

Warning!
Serious head injuries or death may be the consequence of the residual risks listed below!

Hazard:

Lethal electric shock

Danger point:

Automatic feeder, main switch of automatic feeder, electrical equipment, connection point, safety temperature limiter, motor terminal board, valve connection

Measures:

- Always pull the mains plug before carrying out any work on the automatic feeder.
- An earth leakage circuit breaker (ELCB) of 30 mA should be installed by the customer.

- The connection point covers may be opened only by a qualified electrician.

Hazard:

Breakdown

Danger point:

Electrical equipment

Measures:

- The automatic feeder must be checked regularly for electrical safety in compliance with national regulations (repeated inspection).

Hazard:

Indirect contact

Danger point:

Automatic feeder, electrical equipment, mixer motor, motor terminal board, valve connection with valve connector

Measures:

- Fuse protection of 16 A (provided by the customer) and an earth leakage circuit breaker (ELCB) of 30 mA have to be installed for the automatic feeder in compliance with local regulations.

Hazard:

(Electric) shock

Danger point:

Automatic feeder

Measures:

- The machine's potential equalisation is to be connected by the customer.

Hazard:

Crushing, clipping, cutting or cutting off

Danger point:

Powder outlet, sheet metal spring, agitator blade

Measures:

- Do not reach into the danger area as long as parts are able to move within it.
- Only clean the powder discharge opening with the respective spatula and with the automatic feeder in the switched-off state.

Hazard:

Corrosion

Danger point:

Pipelines, valves, inside of mixer

Measures:

- Use only those cleaning agents which are suitable for the materials used in the automatic feeder. For information about this, see “Which materials are used in the automatic feeder?”, page 41.

Hazard:

Poisoning, infection

Danger point:

Teats, pipelines, valves, inside of mixer, powder outlet, drinking water connection, boiler

Measures:

- Observe the manufacturer's specifications and the national regulations regarding the storage and application of the cleaning agent used when cleaning.
- Always wear your personal protective equipment when handling cleaning agents.
- Completely remove all coolants and lubricants in accordance with the cleaning specifications in “Cleaning”, page 41ff when putting the automatic feeder into service for the first time.
- Check whether the animal feed is in perfect microbiological condition and give it swiftly to the animals after preparing it. Also observe the details in “Cleaning”, page 41ff.
- Lambs must be kept in such a manner to keep illnesses and the spread of illnesses to a minimum.
- Observe the national regulations for the protection of drinking water when connecting the automatic feeder.
- Drain the water out of the boiler to prevent contamination of the water and damage due to frost in the event of (temporary) removal from service.

Hazard:

Burning, scalding

Danger point:

Valves, heating, water dosing

Measures:

- When touching the surfaces of valves, observe that they can become up to 100°C hot.
- The heating is to be checked regularly for damage.
- Regularly check the temperature of the boiler to detect any deviation of the temperature sensor.

Hazard:

Loss of stability

Danger point:

Automatic feeder

Measures:

- Always set up the automatic feeder on an even surface.

Hazard:

Unintentional/unexpected start-up

Danger point:

Beater, powder outlet

Measures:

- Do not reach into the feeding box when the automatic feeder is switched on.
- Clean the powder discharge opening only with the appropriate scraper and the automatic feeder switched off.

Hazard:

Access to/contact with moving parts

Danger point:

Pump motor

Measures:

- Pull the mains plug before opening the pump housing for maintenance work.

Hazard:

Substantial physical exertion

Danger point:

Automatic feeder

Measures:

- When setting up the automatic feeder, the occupational safety measures are to be observed to prevent overburdening personnel.

2.7 Safety devices at the automatic feeder

The safety devices at the machine are an important part of the safety concept and help prevent accidents.

- Do not remove or modify the safety devices without observing the corresponding safety instructions.
- Put the machine into service only once all safety devices have been applied and are in protection position.

Safety temperature limiter

The automatic feeder heating is equipped with a safety temperature limiter which is triggered in the event of overheating (70°C) and consequently shuts down the heating.

The safety temperature limiter is triggered if the water is too hot or if the heating is running dry. You can find out how to reactivate the safety temperature limiter in the chapter “Heating does not respond (E--4)”, page 50ff.

The safety temperature limiter can be found behind the cover illustrated below.

1 Cover of the safety temperature limiter

Attention	The heating must be checked by a service technician if the safety temperature limiter is triggered repeatedly.

Protective grid for powder hopper attachment

The protective grid for the powder hopper attachment prevents you from being injured by the rotating tools in the powder hopper, for example when filling in milk powder.

1 Protective grid

Warning	The protective grid must always be installed during operation.

2.8 Obligations of the owner

The owner is obliged to:

- Rule out any misuse by children.
- Carefully read and understand this operating manual before putting the automatic feeder into service.
- Allow only operating personnel to work with/on the automatic feeder who:
  - Are familiar with the basic operational safety and accident prevention regulations.
  - Have been instructed in work with/on the automatic feeder.
  - Have read and understood this operating manual.
- Operate the automatic feeder only as intended.
- Keep all safety signs on the automatic feeder in legible condition and renew damaged ones.
- Not change the design or functions of the automatic feeder.
- Operate the automatic feeder only in perfect functional condition.

- Subject the automatic feeder to regular visual inspection for damage and have any damage rectified by a service technician if necessary.
- Check the safety devices applied to the automatic feeder regularly for perfect working order.
- Make sure the automatic feeder is operated only with installed safety devices.
- Provide the operator with the required personal protective equipment.
- Make sure the main switch, mains sockets of the automatic feeder and the power supply provided by the customer are easy to access at all times.
- Make sure the automatic feeder and all parts which can be manually cleaned or are required for cleaning procedures are easy to access at all times.
- In those countries where other mains plugs are used than those which are installed, be sure that these standard mains plugs are properly replaced by the prescribed plugs. If the automatic feeder is delivered without mains plug, be sure that the plug prescribed in the corresponding country is properly installed.
- Make sure the automatic feeder is installed at a dry, clean and frost-free place, separated from the animal area.
- Always check the correctness of all entries and that the automatic feeder is working properly. It is so that incorrect entries could harm the health of the animals.
- Continuously check the livestock and die functions of the automatic feeder. If the animals are not being supplied with feed or are being insufficiently supplied with feed, ensure that the animals are fed elsewhere.

- Protect the automatic feeder and all corresponding cables from exposure to sunlight.
- Check the animal feed to be fed to the animals for perfect microbiological condition to avoid damaging the health of the animals.
- Only use commercially available milk substitutes and additives.
- Only use potable water for the preparation of milk substitute feed.
- Animals must be kept so that illnesses and the spread of illnesses are limited to the greatest extent possible.

2.9 Obligations of the operator

Before commencing work, the operator is obliged to:

- Observe the basic operational safety and accident prevention regulations.
- Read and understand this operating manual.
- Observe all the safety information and instructions included in this operating manual.

When using cleaning agents for cleaning, the operator is also obliged to wear personal protective equipment (safety glasses, protective gloves).

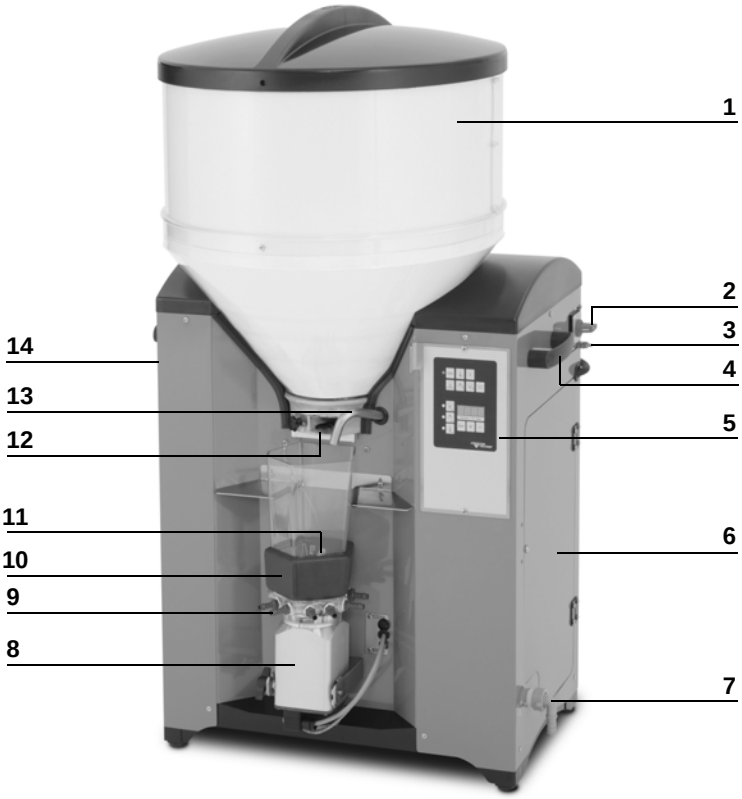
It is also essential that the compulsory accident prevention regulations which apply at the operation site in the country of use and the approved technical rules for safety-relevant and specialist work are observed.

2.10 Structural alterations

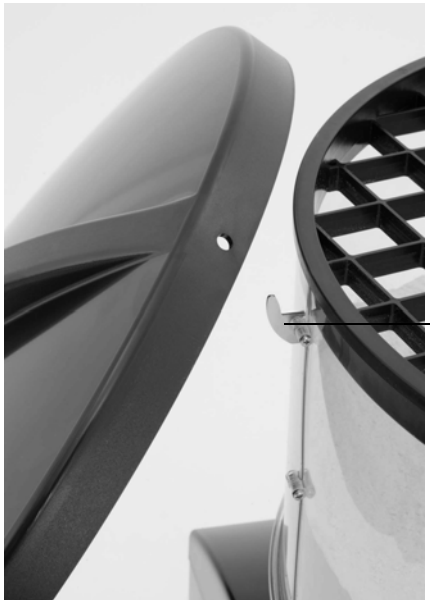
The automatic feeder must not be subjected to any unauthorised alterations at any time.

Only original spare parts, wear parts and accessories may be used, since any warranty claims will otherwise expire.

3 Components of the automatic feeder



1	Storage container with attachment for milk substitute	8	Mixer (feeding box + mixer motor)
2	Main switch	9	Hose connections
3	Screw for potential equalisation	10	Mixer heating (optional)
4	Handle	11	Rod electrode
5	Control system	12	Milk powder discharge
6	On the right side in the machine housing: water valve, electronic boiler, overheating protection	13	Water outlet
7	Water connector	14	Name plate (not shown)



1	Lid suspension

4 Technical data

4.1 Technical data of the automatic feeder

Electrical connection

TAP5-EZ2-50-F3

230 V / 400 V / 3 / N / PE / 50 Hz / 16 A

TAP5-EZ2-32-F3

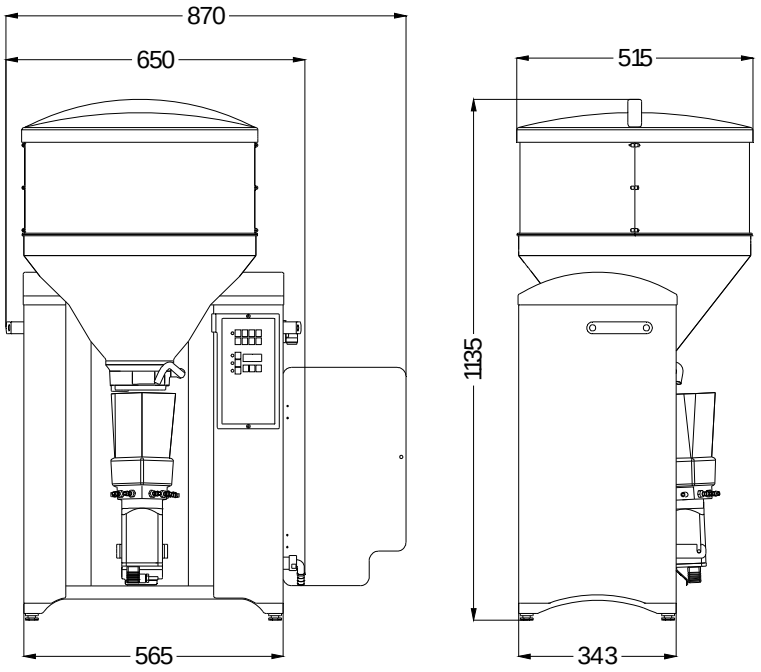
230 V / L / N / PE / 50 Hz / 16 A

TAP5-EZ2-28-F3

240 V / L1, L2 / Grd / 60 Hz / 15 A

Note	The data for the electrical connection can be found on the name plate on the left side of the base frame.

Dimensions of the automatic feeder in millimetres



Weight

Approx. 34 kg

Water connection

½ inch hose with ¾ inch screwed hose connection.
The customer must ensure the water pressure is between 2.5 and 6 bar.

Boiler

Boiler capacity: approx. 7 litres

Milk powder container

Capacity with attachment: approx. 35 kg

Number of feeding stations and animals

TAP5-EZ2-50-F3: up to 8 feeding stations each with 25-30 lambs

TAP5-EZ2-32-F3: up to 6 feeding stations each with 25-30 lambs

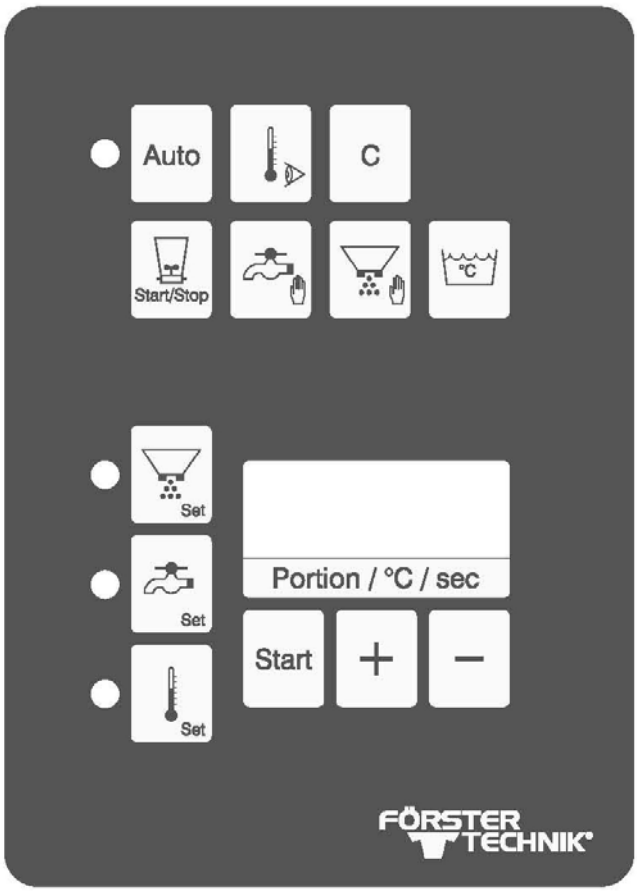
TAP5-EZ2-28-F3: up to 6 feeding stations each with 25-30 lambs

5 Operation

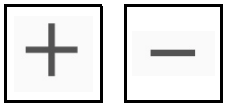
5.1 Keypad

Only the keyboard symbols, not their designations, are used for instructions in this operating manual.

Keypad symbol	Function
	Automatic mode
	Boiler temperature control
	Reset portion counter
	Start/stop mixer
	Manual water function
	Manual MP function
	Heat up cleaning water
	MP quantity setting
	Water quantity setting
	Boiler temperature setting



Start



Correction keys

5.2 Operating controls

5.2.1 Auto

Press this key to switch the automatic feeder on and off.

5.2.2 Boiler temperature query

Press this key to query the boiler temperature.

5.2.3 Delete

Press this key to reset the portion counter to 0.

5.2.4 Start/stop mixer

Press this key to start/stop the mixer interval.

5.2.5 Manual functions

Press these keys to dispense water or MP directly in the mixer.

5.2.6 Clean

Press this key to heat up the cleaning water once to cleaning temperature (55° C).

5.2.7 Setting keys

Press these keys to set the MP or water dosing quantity or the boiler temperature.

5.2.8 Start key

Press this key to start actions.

5.2.9 Correction keys

[+] [−] Press these keys to correct the values on the display.

5.3 Operating modes

The device knows the two operating modes **automatic mode** and **offline mode**. The animals are fed when the device is in automatic mode. Offline mode is used to carry out actions that cannot be performed in regular operation mode, for example adjusting feed components or cleaning the mixer.

5.3.1 Automatic mode

If you have made program settings in offline mode and wish to **return to automatic mode**, press [Auto].

Note	The automatic feeder is in automatic mode if the **diode to the left of Auto is lit up**.

If you press [Auto] in order to set the MP dosing quantity, for example, automatic mode will be interrupted.

5.3.2 Offline mode

Feeding is interrupted when the automatic feeder is in offline mode. To return to automatic mode, you must press [Auto]. The diode lit up next to the **Auto** key indicates automatic mode.

6 Putting the feeder into and removing it from service

- The automatic feeder may be put into service only by a service technician.
- When returning the automatic feeder to service, proceed as described under "Putting the feeder into service".

6.1 Putting the feeder into service

6.1.1 Electrical connection provided by the customer

> Have the electrical connection provided by the customer installed by a qualified electrician.

> Observe the local regulations and protective measures.

> A 30 mA earth leakage circuit breaker (ELCB) in the electrical power supply provided by the customer is compulsory for the operation of the automatic feeder.

> The nominal voltage and nominal frequency must be observed. The mains voltage specified on the name plate of the device must correspond to that of the mains supply.

> If there is a danger of overvoltage, have overvoltage protectors installed in your electrical power supply (provided by the customer) by a qualified electrician (lightning protection measure).

> Protect the automatic feeder and all corresponding cables from exposure to sunlight.

Potential equalisation

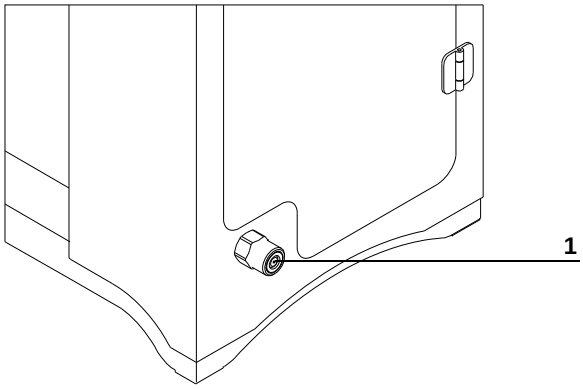
To protect the animals and prevent electrical faults, subject all metallic objects, such as the water pipes, feeding station and automatic feeder, to potential equalisation. The terminal screw for the potential equalisation of the automatic feeder is on the right-hand side of the machine housing, directly next to the electrical connection cable. Connect the terminal screw to the local

earth with a short, flexible copper cable (minimum cross-section of 4 mm²).

Lightning protection

Since it is not technically possible to protect such a system separately against lightning, you must provide appropriate lightning protection (e.g. lightning protection system for the entire building). We recommend the conclusion of a lightning protection insurance policy.

6.1.2 Water connection



> Observe the national regulations about protection of drinking water when connecting the automatic feeder.

> Use a separate water shut-off valve for the water supply of the automatic feeder.

> Make sure the water pressure is constant.

> The water pressure must be at least 2.5 bar and must not exceed 6 bar. If water pressure of 2.5 bar cannot be ensured, change over to the water tank (optional).

Note	If you change over to the water tank, the standard water valve of the automatic feeder is replaced by a low-pressure valve. For this reason, the water for the automatic feeder must always be supplied via the water tank after the conversion.

Note	The water pressure may fall during operation if the cross-section of a water pipe is small. The same applies to water pipes from which water is extracted simultaneously at different points.

Attention	The water should be of drinking water quality. Please bear in mind that high calcium, iron and manganese concentrations can cause premature wear. In these cases it makes sense to install appropriate filtration systems.

6.1.3 Setting up the automatic feeder

> When setting up the automatic feeder, observe the occupational safety measures to prevent overburdening.

> It is recommended to install the automatic feeder at a clean, dry and frost-free place, separated from the animal area.

> Set up the automatic feeder always on an even surface.

> Make sure the place where the automatic feeder is set up has a drain for any accumulating cleaning water.

> It is recommended to provide a drain at the feeding station below the teat to drain any residual feed and cleaning water.

6.1.4 Opening hose fittings

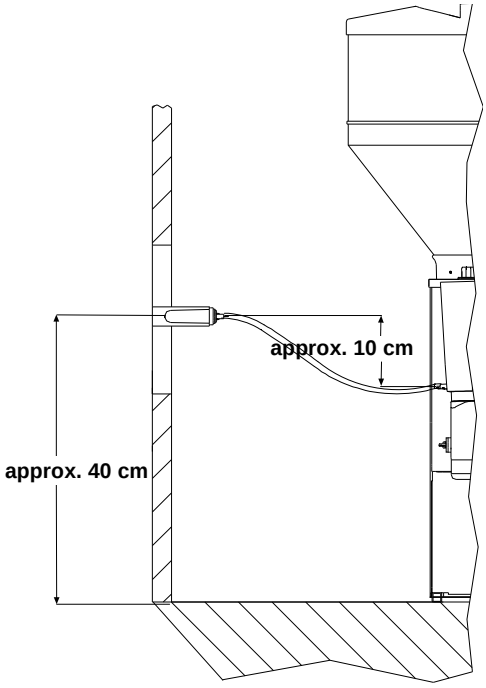
The mixer of the automatic feeder has eight suction hose fittings of which two are open and six closed with a plug.

> Use a suitable tool to press the plug of the hose fitting you wish to open into the feeding box.

> Remove the plug from the feeding box and store it at a suitable place in order to be able to close the hose fitting again if necessary.

6.1.5 Installing a feeding station

> Install the teat at the intended point on the front plate, approx. 10 cm above the suction hose connection of the mixer and therefore 40 cm above the lamb's platform.



Note	If possible, the suction hose should not be longer than two metres.

Attention	To prevent feed from accumulating in the hose, make sure the hose between the teat and feeding box does not sag and is installed with a downward slope to the automatic feeder (see figure above).

6.1.6 Installing the suction hose holder for cleaning

> Attach the suction hose holder for cleaning the automatic feeder nearby the feeding station.

Attention	The suction hose holder must be installed at a higher position than the mixer to prevent cleaning water from flowing out of the hoses.

6.1.7 Installing the protective grid for the powder hopper attachment

The protective grid for the powder hopper attachment prevents you from being injured by the rotating tools in the powder hopper, for example when filling in milk powder.

1 Opening in the powder hopper attachment for screwing in a self-tapping screw

Proceed as follows for the installation of the protective grid:

1. Make sure the automatic feeder is de-energised.
2. Remove the bag with the small parts and hoses as well as the operating manual from the powder hopper.
3. Insert the protective grid for the powder hopper attachment.
4. Screw the three self-tapping screws into the provided holes.

	Warning! To avoid injuries, the protective grid must always be installed during operation.

6.1.8 Filling the powder container

> Only fill milk powder which is suitable for lamb feeding and automatic feeders.

Attention	Make sure no paper or other foreign objects enter the powder container. The dosing mechanism could otherwise be damaged or the dosing accuracy impaired.

Attention	No warning is displayed if the powder hopper is empty. Feeder operation is continued without any milk substitute. This may mean that the animals receive only water and are not supplied with any or enough feed.

6.1.9 Filling the boiler

> Plug in the mains plug and turn the main switch clockwise to **ON**.

Note	After switching on, the program version and the number of portions are first briefly displayed before the automatic feeder carries out a check routine. Do not press any buttons on the control panel during these start routines.

Note	At the end of the starting routine, water automatically runs into the mixer for up to 180 seconds. As soon as the mixer electrode is covered, the boiler is filled and the automatic feeder switches to automatic mode.

6.1.10 New installation

The program has to be completely reinstalled when putting the automatic feeder into service or restoring it to service. This removes any superfluous data as well as any settings which are no longer up-to-date or incorrect from the memory.

> Press Start and C and keep the keys pressed when switching on the device. All set values are reset to default values.

6.1.11 Cleaning the automatic feeder

For hygienic reasons, any coolant and lubricant remnants have to be completely removed from the system when putting the feeder into service for the first time. See “Cleaning”, page 41ff.

6.1.12 Setting the set temperature

The set temperature of the water in the boiler must be set when putting the feeder into service. The minimum temperature always remains 3 °C below the set temperature and cannot be set.

1. Exit automatic mode by pressing Auto.
2. Press Set. The LED next to the key lights up and a temperature which has been set appears on the display of the control system.
3. Set the set temperature by pressing + or −.

	Set temperature	**Minimum temperature**
Default value:	42 ºC	39 ºC
Permitted value range:	10 to 44 ºC	3 °C below the set temperature

Note	The values that you have entered for the set temperature are converted for the set and minimum temperature of the boiler water. If the temperature of the boiler water falls below the minimum temperature, the feed preparation is interrupted until the set temperature is reached again.

Recommendations for the temperature settings

Make sure the temperature corresponds to the mixing temperature specified by the MP manufacturer.

	Caution! Feed temperatures that are too low can cause digestion problems. Feed temperatures that are too high can cause, for example, inflammations of the mucous membranes in the abomasum.

6.1.13 Setting the portion sizes

In order for the automatic feeder to dose and mix the water and MP components exactly, the dosing quantities first have to be determined and set manually.

Note	Please have the following objects readily available for setting the portion sizes: a glass cylinder with ml scale is required to set the **water** and gramme-exact scales are required to set the **MP**.

6.1.13.1 Setting the water

1. Press Auto to exit automatic mode.
2. Press Set. The LED next to the key lights up.
3. Hold an empty measuring vessel under the water drain and press Start. A certain quantity of water is dispensed during the time displayed on the control system's display.

4. Measure the collected quantity.
5. Use [+] or [−] to change the time if necessary in order for the desired quantity to be dispensed in the measuring vessel.
6. Press [Start] again and measure the dispensed quantity.
7. Repeat the procedure until the desired quantity is dispensed exactly.

6.1.13.2 Setting milk powder

1. Press [Auto] to exit automatic mode.
2. Press [Set]. The LED next to the key lights up.
3. Hold an empty measuring vessel under the powder outlet and press [Start]. A certain quantity of MP is dispensed during the time displayed on the control system's display.
4. Weigh the collected quantity.
5. Use [+] or [−] to change the time if necessary in order for the desired quantity to be dispensed in the measuring vessel.
6. Press [Start] again and weigh the dispensed quantity.
7. Repeat the procedure until the desired quantity is dispensed exactly.

6.2 Removing the feeder from service

Please refer to Section 9.3, page 56, Putting the automatic feeder out of service, to find out how to proceed in order to remove the feeder from service.

7 Cleaning

7.1 Which parts of the automatic feeder are to be cleaned?

In order to maintain the required level of hygiene, all parts of the automatic feeder or the assemblies connected to it that may come into contact with liquid or powdered perishable animal feed or additives, such as the feeding box and suction hoses, are to be cleaned.

7.2 Which materials are used in the automatic feeder?

The following materials are used in the automatic feeder, among others:

- Enzidor brass
- Silicon carbide
- Carbon
- V2A, V4A
- Plastics: PET, TPE, silicone, PVC, NBR, ABS, PUR
- Viton
- Vulcanised fibre, graphitised
- Rubber

7.3 Which cleaning agents are allowed to be used?

We recommend the cleaning agent **HyClean K45** for the daily cleaning of the automatic feeder. You can obtain it from us.

However, commercially available alkaline or acidic cleaning agents can also be used. The cleaning agent used must meet the following requirements:

- It must be able to be used within a temperature range of 40 to 50 °C.

- The contents must not have a corrosive effect on the materials used by Förster-Technik (see **7.2** Which materials are used in the automatic feeder?, page **41**). The cleaning agent must be free from chlorine, in particular, since chlorine corrodes and therefore damages stainless steel.

Attention	Find out from your cleaning agent supplier whether your cleaning agent is suitable for this type of use. Observe the instructions of the cleaning agent supplier included in the technical data sheet, in particular the dosing instructions and safety regulations.

- In addition, a cleaning cycle with an acidic cleaning agent should be performed whenever necessary, but at least every two weeks.

7.4 General safety instructions for handling cleaning agents

	Do not spray-wash! Water (liquids) can damage electrical components. • Do not spray-wash the automatic feeder. Do not use any high-pressure cleaners or similar equipment either. • If you want to clean the automatic feeder, only use a damp cloth to wipe the respective components.

- Always wear personal protective equipment (e.g. safety glasses, protective gloves) when handling cleaning agents. Observe also the specifications on the safety data sheet for your cleaning agent.
- Observe the exact cleaning water temperature and concentration specifications of the manufacturer.
- Never mix alkaline and acidic cleaning agents.

Warning!

Danger of injury and death!

Never mix alkaline and acidic cleaning agents, since this could cause a dangerous chemical reaction. Dangerous gases may be created and cause serious breathing difficulties. They may also cause explosions.

- For individual cleaning cycles with an acidic cleaning agent, we therefore recommend filling the agent into the feeding box manually in one cleaning cycle without any automatic addition of detergent.

- Make absolutely sure no undiluted or large quantities of cleaning agent end up in the ground water, water bodies or the sewage system. No undiluted or unneutralised cleaning agents may enter the sewage or receiving water. Observe the provisions of your local waste disposal company and the safety data sheet for your cleaning agent in this respect.

7.5 General preparatory work for using cleaning agents

- Fill the cleaning agent into containers intended for this purpose.

Note	Observe the dosing recommendations of the cleaning agent manufacturer. We recommend scheduling the cleaning in a time when there is not much feed entitlement.

- When adding the cleaning agent manually, have the respective cleaning agent quantity ready in order to reach the desired concentration in the main cleaning cycle.

7.5.1 Water and detergent quantities in the main cleaning cycle

Water quantity: approx. 1.3 litres

Detergent quantity in the event of manual addition of the detergent and a target concentration of 1%: 13 ml/cleaning cycle

7.6 Cleaning the feeding box

The mixer should be cleaned manually with or without detergent at least every two days.

The mixer is cleaned intensively in a cleaning cycle. This cleaning cycle consists of:

- Pre-cleaning
- Cleaning with the addition of detergent
- Rinsing with clear water

If a cleaning agent is to be used for cleaning, the cleaning agent must be added manually at the beginning of the main cleaning cycle. Drain the cleaning water by means of the suction hoses or by emptying the feeding box.

Warning!

Risk of injury due to automatic start-up!

- Never reach into the feeding box as long as parts are able to move within it.

Attention	Make sure no lamb is sucking the teat during the cleaning cycle.

To clean the feeding box manually, proceed as follows:

1. Exit automatic mode of the automatic feeder.
2. Disconnect the suction hoses from the teat and attach the hose ends in the intended suction hose holders.
3. To pre-clean, press . Fill the mixer completely with water and drain it with the suction hoses.

Note	You can achieve better cleaning results by additionally starting the mixing interval for pre-cleaning by pressing .

4. Press and allow the cleaning water to heat up to cleaning temperature (55° C).
5. Press . Dispense about one litre of water (approx. 2/3 of the feeding box is filled) and add the respective quantity of detergent.
6. Start the mixer interval by pressing .
   6.1 Fill the mixer with water during the interval until it is full and add the respective cleaning agent quantity.
7. Switch off the automatic feeder by the main switch at the end of the mixer interval and clean the feeding box thoroughly with a soft brush or sponge.

Attention	Never use a high-pressure cleaner or similar device, since this can damage the automatic feeder.

8. Switch on the automatic feeder again and empty the cleaning water or drain it using the suction hose.
9. To rinse, press . Fill the feeding box with water and drain it using the suction hoses.

Note	You can achieve better cleaning results by additionally starting the mixing interval for rinsing by pressing .

10. Connect the suction hoses to the teats again and make sure no more cleaning water is in the suction hoses.
11. Switch the automatic feeder back to automatic mode.

7.7 Cleaning the suction hose

To clean the suction hose, a cleaning sponge is pressed through the suction hose by water pressure created by the hose cleaning gun. Clean the suction hose whenever necessary.

1 Water hose connector	3 Cleaning sponge injector with suction hose connector
2 Cleaning sponges	4 Quick-action coupling

Proceed as follows to clean the suction hose:

1. Exit automatic mode of the automatic feeder.
2. Remove the suction hose from the teat and hang the end into a container.
3. Undo the cleaning sponge injector from the hose cleaning gun and insert the cleaning sponge.
4. Re-attach the cleaning sponge injector to the hose cleaning gun.
5. Remove the other end of the suction hose from the mixer and connect it to the hose cleaning gun.

6. Connect the hose cleaning gun to the water hose and press the cleaning sponge with water pressure through the suction hose by actuating the hose cleaning gun.
7. Drain the cleaning water out of the suction hose.
8. Re-attach one end of the suction hose to the teat and the other end to the mixer.
9. Take the cleaning sponge out of the container.

Note	Clean the cleaning sponge thoroughly after use and store it at a dry place.

10. Switch the automatic feeder back to automatic mode.

7.8 Powder discharge opening

7.8.1 Manual cleaning

The powder discharge opening must be checked **daily** for milk powder deposits and cleaned manually if necessary.

Warning!

Risk of injury due to automatic start-up!

- Never reach into the danger area at the indicated points as long as parts are able to move there.

1. Switch off the automatic feeder.
2. Clean the powder discharge with the tool included in the scope of delivery. Collect any loose deposits and escaping milk powder and dispose of them.
3. Switch on the automatic feeder again and switch it to automatic mode.

7.9 Basic cleaning of the powder container with dosing unit

The powder container with dosing unit is subjected to basic cleaning whenever necessary or at the latest if the automatic

feeder is temporarily removed from service, for example for seasonal lambing. Any milk deposits are removed from the inside of the powder container and dosing unit in the process.

Attention	Never use a high-pressure cleaner or similar device for cleaning, since this can damage the automatic feeder.

1. Switch off the automatic feeder.
2. Empty the milk powder container and remove the dosing tongue.
3. Clean the dosing tongue and dry it if necessary.
4. Use a dry brush and the cleaning scraper to remove the milk powder deposits from the powder container and the powder discharge opening.
5. Reinstall the dry dosing tongue.
6. Refill with milk powder only when the device is to be used again.
7. Switch on the automatic feeder again and set the milk powder dosing quantity.

8 Failures and warnings

Automatic operation of the automatic feeder is interrupted if a **failure** occurs. A corresponding fault message appears on the control system's display and the green LED (auto) flashes.

Warnings indicate problems that do **not interrupt automatic operation of the automatic feeder**. Warnings are also indicated by the LED flashing.

Warning and fault messages are automatically deleted once the fault is rectified.

8.1 Failures

8.1.1 Water shortage (E--1)

This message is displayed in the event of a water shortage.

> Press and fill the feeding box with water until the mixer electrode is covered.

Note	A decimal point appears next to the boiler temperature on the right side of the control system's display when the mixer electrode is covered with water.

8.1.2 Overheating (E--2)

This message is displayed in the event of overheating.

> Press and remove water from the boiler until the set temperature is achieved.

8.1.3 Boiler safety temperature limiter (E--3)

The adjacent message is displayed in the event of a short circuit or breakage of the safety temperature limiter.

> Have the safety temperature limiter replaced **only** by a service technician.

8.1.4 Heating does not respond (E--4)

The adjacent message is displayed if the heating does not respond.

> Make sure enough water is in the boiler.

> Press to switch on the heating. Check whether the displayed temperature rises.

Only for service technicians

Possible causes and measures:

- The heating rod is defective.

> Check the heating rod for passage.

- The temperature sensor is defective.
- No voltage is applied to the heating.

> Check the customer's fuses if necessary.

- The safety temperature limiter has been triggered. Proceed as follows to reactivate it:

	Danger due to live electrical components! Danger of death by electric shock! • Disconnect the automatic feeder's mains plug before resuming the reactivation of the safety temperature limiter.

> Open the right side door of the automatic feeder.

> Remove the metal cover from the safety temperature limiter.

> Press the red reset button in order to reset the safety temperature limiter.

> Attach the metal cover and close the side door.

> Reinsert the mains plug and turn the main switch back to ON position.

8.1.5 Boiler not filled (E--5)

The adjacent message is displayed if the boiler has not been filled.

E--5

> Press and fill the feeding box with water until the mixer electrode is covered.

8.2 Warnings

8.2.1 Temperature too high in the boiler

If the temperature of the water in the boiler is too high, the LED next to the Auto key will flash in addition to the boiler temperature on the control system's display.

> Press and remove water from the boiler until the set temperature is reached.

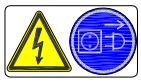
9 Care and maintenance schedule / routine work

This chapter covers the regular maintenance work and functional inspections on the automatic feeder as well as its accessories that ensure the required hygienic standards are maintained. Maintenance work covers, for example, calibrating, cleaning to maintain hygiene as well as the scheduled replacement of wear parts.

The visual and functional inspection of components as well as the replacement of simple wear parts, such as the suction hose, can be carried out by the owner/operator.

Repair work as well as the replacement of wear parts on or in the automatic feeder may **only** be performed by a service technician.

9.1 Safety instructions

	**Danger due to live electrical components!** Danger of death by electric shock! • Always pull the mains plug of the automatic feeder before carrying out any work on the automatic feeder.

	Danger due to hot surfaces! The solenoid valves can reach temperature of up to 100°C during operation or malfunctions. Severe burns may be the result. • Never touch the solenoid valves when they could be hot.

Danger due to automatic start-up!

Hand injuries can be caused by reaching into the danger of crushing area at the indicated points.

- Never reach into the danger of crushing area at the indicated points as long as parts are able to move there.
- Always use the tool included in the scope of delivery to clean the powder discharge opening.
- Switch off the automatic feeder before performing any work on it.

9.2 Maintenance intervals and activities

Note	If you detect any faults or damage to the automatic feeder between the maintenance intervals recommended below, you must make sure they are rectified immediately by a service technician as required.

	Care/maintenance interval			
	daily	weekly	3 months	12 months
Inspection of the lambs	✓			
Intensive mixer				
• Visually check the electrodes and mixer blades for correct operation	✓			
• Visually check the mixer for leaks	✓			
• Visually check the effectiveness of the cleaning cycles	✓			

	Care/maintenance interval			
	Daily	Weekly	3 months	12 months
Suction hose and teat				
• Visually check the suction hose and teat for damage and wear and clean them if necessary	✓			
• Replace all milk hoses from the mixer to the feeding station				✓
Powder conveyance				
• Check the powder discharge opening for foreign bodies	✓			
• Check or set the MP dosing quantity at least after every new MP delivery			✓	
• Empty the powder conveyance and check it for correct operation				✓
• Perform the basic cleaning (see chapter “Basic cleaning of the powder container with dosing unit”, page 47				✓
Water supply				
• Check or set the water dosing quantity			✓	

9.2.1 In compliance with national regulations

All electrical components must be checked regularly for electrical safety in accordance with the intervals and test methods defined in the national regulations.

This inspection may be conducted **only** by a service technician.

If any damage is detected during the inspection, the faulty components have to be replaced by a service technician before work can be resumed with the automatic feeder.

9.3 Putting the automatic feeder out of service

	ok?
Pull the mains plug.	☐
Empty and clean the milk powder hopper.	☐
Drain the water from the boiler Pull off the water hose between the water solenoid valve and the boiler and open the vent screw on the cover of the boiler to allow the water to flow out. When the boiler is completely empty, re-attach the water hose and tighten the vent screw.	☐
Drain the water from the solenoid valves and the volume regulator. (In case of frost risk!)	☐
Basic cleaning of the powder container and dosing unit	☐
Store the devices in a frost-free location, if possible.	☐

10 Customer service checklist

Note	You must carefully read and observe the instructions, in particular the safety instructions in the operating manual, before putting the automatic feeder into service.

Putting the feeder into service		**OK ?**
1.	Earth the automatic feeder	☐
2.	Tell the end user that the water should be of drinking water quality. Excessive lime and/or iron and/ or manganese concentrations can cause premature wear.	☐
3.	Tell the end user that the device and cables are to be protected against exposure to sunlight.	☐
4.	Connect the water supply	☐
5.	Install the feeding station	☐
6.	Install the suction hoses	☐
7.	Install the suction hose holder for cleaning	☐
8.	Install the protective grid for the powder hopper attachment	☐
9.	Fill up the MP container	☐
10.	Connect the electrical power supply	☐
11.	Switch on the automatic feeder	☐
12.	Fill the boiler with water	☐
13.	New installation	☐
14.	Carry out cleaning	☐
15.	Set the set temperature of the heating	☐
16.	Check the operating mode	☐
17.	Set the portion sizes	☐

Setting the portion sizes		**OK ?**
1.	Boiler temperature	☐
2.	MP	☐
3.	Boiler water	☐

EC declaration of conformity

according to the EU Machinery Directive 2006/42/EG, Annex II, 1.A

Manufacturer:
Förster-Technik GmbH,
Gerwigstr. 25
78234 Engen

Person residing within the Community authorised to compile the relevant technical documentation:
Müller Barbara
Förster-Technik GmbH,
Gerwigstr. 25
78234 Engen

Description and identification of the machinery:

Make:	Automatic feeder
Type:	TAP0-EZ1-28-M, TAP0-EZ1-32-M, TAP0-EZ1-38-M, TAP0-EZ1-50-M, TAP1-EZ1-32-M, TAP1-EZ1-38-M, TAP5-EZ2-50-F3, TAP5-EZ2-32-F3, TAP5-EZ2-28-F3
Function:	Automatic preparation, heating, and dosing of liquid feeds for young animal feeding

It is expressly declared that the machinery fulfils all relevant provisions of the following EU Directives:

2006/42/EG	Directive 2006/42/EG of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EG (recast)
2004/108/EG	(Electromagnetic Compatibility) directive 2004/108/EC of the European Parliament and the Council from December 15, 2004, for adjustments of the legal regulations of the member states about electromagnetic compatibility and for repeal of directive 89/336/EEC
97/23/EG	(Pressure equipment) Directive 97/23/EG on the approximation of the laws of the Member States concerning pressure equipment

Reference to the harmonised standards used, as referred to in Article 7(2):

EN ISO 12100:2010-11	Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology (ISO 12100:2010)
EN 60204-1:2006/A1:2009	Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:2005)
EN 60204-1:2006/AC:2010	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
EN 60950-1:2006/A12:2011	Information technology equipment - Safety - Part 1: General requirements
EN 60950-1:2006/AC:2011	Information technology equipment - Safety - Part 1: General requirements
EN 60950-1:2006/A1:2010	Information technology equipment - Safety - Part 1: General requirements
EN 60950-1:2006/A11:2009	Information technology equipment - Safety - Part 1: General requirements

Engen, 28 October 2013

Place, date

Signature
Markus Förster
Geschäftsführer